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10/623,568

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EXAMINER

MOON, SEOKYUN

ART UNIT

PAPER NUMBER

2629

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/623,568

Applicant(s)

SUZUKI ET AL.

Examiner

Seokyun Moon

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 26 July 2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 13, 14, 15, 23, 25, 26, 28, 31, 33, 34, and 36** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term disclosed in the claims 13, 23, and 31, "*friction factor*" renders the claim indefinite since the Applicants have failed to explain the definition of the term adequately. Specifically, Examiner respectfully submits that "*friction factor*" is determined by the friction occurred between two objects which come into a contact with each other and thus a single object cannot have such characteristic.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-4** are rejected under 35 U.S.C. 102(b) as being anticipated by Morimoto et al. (US 6,373,265, herein after "*Morimoto*").

As to **claim 1**, Morimoto [fig. 1] teaches an inputting device, which is disposed in an opening of a cabinet surface ("*casing K*"), comprising:

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an elastic sheet ("*conductive rubber layer section 21*") having a top surface and a bottom surface, the top surface disposed on an inside surface of the cabinet including the opening;

a sliding key (a combination of "*operation portion 20a*", "*peripheral protruding portion 20b*", and "*true-circle shaped diaphragm section 20c*") that is fixed on the top surface of the elastic sheet with at least a portion in the opening of the cabinet surface; and

sensors ("*fixed electrodes Dx-*, *Dx+*, *Dy-*, *Dy+*, *Dz-*, and *Dz+*") that at least detect movement in a horizontal direction that is substantially parallel to the cabinet surface, of the sliding key (as the Morimoto's sliding key is moved in a horizontal direction *Mx*, the "*conductive rubber layer section 21*" comes into a contact with the "*fixed electrodes*", and thus the device detects the movement of the sliding key) [fig. 3].

As to **claim 2**, Morimoto [fig. 1] teaches the sliding key having a rim part ("*peripheral protruding portion 20b*") whose diameter is larger than that of the opening.

As to **claim 3**, Morimoto [fig. 1] teaches the inputting device, wherein:

the sliding key (a combination of "*operation portion 20a*", "*peripheral protruding portion 20b*", and "*true-circle shaped diaphragm section 20c*") is adhered to the elastic sheet ("*conductive rubber layer section 21*") at the rim part, and

a space is formed on a portion of the inside surface of the cabinet at a position adjacent to the opening, and

at least a portion of the rim part of the sliding key is disposed in the space.

As to **claim 4**, Morimoto teaches an inputting device comprising:

a first control signal generating means [fig. 5] that generates a first control signal corresponding to at least the moved direction of the sliding key detected by the sensors [col. 6 lines 29-37], wherein:

the first control signal executes the change of the position of a subject to be controlled on a display [col. 6 lines 29-37].

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-4, 9-12, 16-22, 24, 27, 29 and 40-49** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatsuka et al. (US 2004/0080491, herein after "*Takatsuka*") in view of Kobachi et al. (US 2001/0007449, herein after "*Kobachi*").

As to **claim 1**, Takatsuka [fig. 21] teaches an inputting device [abstract lines 1-2], which is disposed in an opening of a cabinet surface ("*covering member 88*"), comprising:

an elastic sheet ("*elastic plate 101b*") having a top surface and a bottom surface, the top surface disposed on an inside surface of the cabinet including the opening;

a sliding key ("*manipulation member 89*") that is placed on the top surface of the elastic sheet with at least a portion in the opening of the cabinet surface; and

sensors ("*magnet sensors 81*") that at least detect movement in a horizontal direction that is substantially parallel to the cabinet surface, of the sliding key [par. (0143)].

Takatsuka does not teach the sliding key to be placed on the top surface of the elastic sheet.

However, Kobachi [fig. 29A] teaches an input device including a slidable body portion fixed to an elastic portion.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takatsuka's input device such that its sliding key is attached to its elastic sheet, as taught by Kobachi, in order to allow the sliding key of Takatsuka's input device to gain a greater restoring force during the input operation [par. (0181)].

As to **claim 2**, Takatsuka [fig. 21] teaches the sliding key ("*manipulation member 89*") having a rim part ("*flange 89a*") whose diameter is larger than that of the opening.

As to **claim 3**, Takatsuka [Takatsuka: fig. 21] modified by Kobachi teaches an inputting device, wherein:

the sliding key ("*manipulation member 89*") is adhered to the elastic sheet ("*elastic plate 101b*"), and

a space is formed on a portion of the inside surface of the cabinet at a position adjacent to the opening, and

at least a portion of the rim part of the sliding key is disposed in the space.

Takatsuka's input device discussed with respect to the rejection of claim 1 does not teach the sliding key being adhered to the elastic sheet at the rim part.

However, Takasuka's input device for a different embodiment teaches the sliding key to be placed on the elastic sheet at the rim part [fig. 20].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the shape of the Takatsuka's input device's sliding key such that the rim part of the sliding key is placed on the elastic sheet, as taught by the different embodiment of Takatsuka, since any one of the shapes of the sliding key would perform equally well at providing sliding movement for the sliding key.

As to **claim 4**, Takatsuka teaches an inputting device, comprising:

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a first control signal generating means ("*printed circuit board*") that generates a first control signal corresponding to at least the moved direction of the sliding key detected by the sensors [par. (0019)], wherein:

the first control signal executes the change of the position of a subject to be controlled on a display [par. (0019)].

As to **claim 9**, Takatsuka [fig. 21] teaches an inputting device, wherein:

a magnet ("*magnet 82*") is disposed in the sliding key, and

the sensors ("*magnet sensors 81*") detect the moved direction and the amount of the horizontal movement of the sliding key based on the change of the magnetic flux density from the magnet corresponding to the movement of the sliding key [par. (0143)].

As to **claim 10**, Takatsuka [Takatsuka: fig. 21] modified by Kobachi teaches an inputting device, wherein:

the sliding key provides a concave part (the space formed inside of the "*manipulation member 89*" which is taken by "*magnet 82*"), and

the sliding key is adhered to the elastic sheet by disposing the magnet in the concave part, and

the magnet is sealed in the sliding key.

Takatsuka does not teach the concave part to be located on a part of the surface where the sliding key is adhered to the elastic sheet.

However, Examiner submits that, as disclosed by the Applicants, the location of the concave part is not a factor required to accomplish the invention of the Application. Specifically, the Applicants disclose different design options for the location of the concave part in figures 4, 5, and 6 of the Application.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place the concave part on either one of inside of the sliding key or on the surface of the sliding key where the sliding key is adhered to the elastic sheet, since any one of the locations for the concave part would perform equally well at storing the magnet of the input device.

As to **claims 11 and 12**, Takatsuka modified by Kobachi does not teach the detecting units (claim 11: the guide with the sensor for optical detection and claim 12: the coil with the sensor for electromagnetic induction detection) for detecting the movement of the sliding key.

However, Examiner takes official notice that the detecting units disclosed in claims 11 and 12 are equivalent with the magnet sensor disclosed in claim 9 for their uses in detection of the movement of objects and the use of any of these known technologies or devices to detect the movement of the sliding key would be within the level of ordinary skill in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify / specify the modified Takatsuka's detecting unit to be a guide with the sensor for optical detection or the coil with sensor for electromagnetic induction detection, since any one of the disclosed sensors would perform equally well at determining the direction and the amount of the movement of the sliding key.

As to **claim 16**, Takatsuka modified by Kobachi [Kobachi: figs. 29B, 30A, and 30B] teaches a bellows portion having a ring shape formed in the elastic sheet outside the position where the sliding key is adhered to the elastic sheet.

As to **claim 17**, Takatsuka [fig. 21] teaches at least one of projections ("*101a*") supporting the sliding key ("*manipulation member 89*") on the inside surface of the elastic sheet ("*elastic plate 101b*").

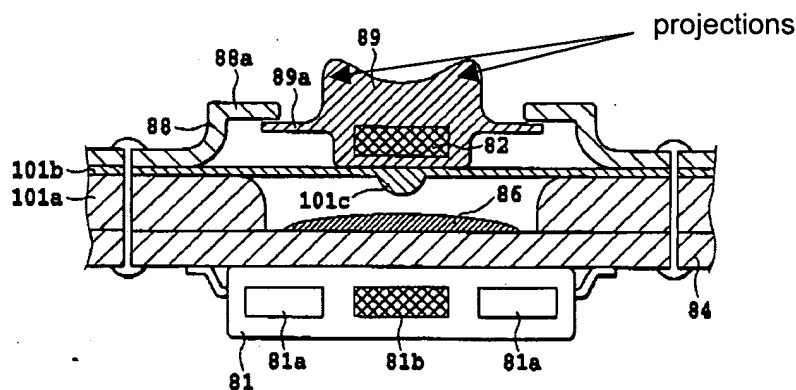
As to **claim 18**, Takatsuka [fig. 21] teaches a concave part formed on the outside surface of the sliding key ("*manipulation member 89*").

As to **claim 19**, Takatsuka does not expressly disclose a nonskid component disposed on the outside surface of the sliding key.

However, Examiner takes official notice that it is well known in the art to include a nonskid part such as a rubber or a plastic having high friction ratio on the outer surface of an inputting key for electronic devices such as laptop computer, mobile phone, and PDA.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the outside surface of Takatsuka's sliding key to be a nonskid portion in order to allow the device user to operate the sliding key conveniently.

As to **claim 20**, Takatsuka [drawing 1 provided on page 8 of this Office Action, which is equivalent to Takatsuka's fig. 21] teaches one or more projections formed on the outside surface of the sliding key.



Drawing 1

As to **claim 21**, Takatsuka does not teach a plurality of openings in the cabinet surface and a group of keys disposed in a corresponding opening of the plurality of openings of the elastic sheet.

However, the courts have held that a mere duplication of the components of the device is generally recognized as being within the level of ordinary skill in the art. St. Regis Paper Co. v. Bemis Co. Inc. 193 USPQ 8, 11 (7TH Cir. 1977).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takasuka's device to include a plurality of sliding keys on the front surface of the elastic sheet and disposing each of the plurality of the sliding keys in a corresponding opening of the plurality of openings in the cabinet surface, in order to provide multiple control means allowing the device user to control the cursor on a display with a plurality of input means.

As to **claim 22**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for a mobile terminal, a displaying means and a first controlling means.

Takatsuka teaches a mobile terminal including the inputting device [par. (0003)] and a first controlling means that executes first control corresponding to at least the moved direction of the sliding key in the horizontal directions detected by the sensors [par. (0019) lines 5-9].

Furthermore, Takatsuka inherently teaches a displaying means that displays information since it is required for Takatsuka's mobile terminal to display the movement of the sliding key.

As to **claim 24**, all of the claim limitations have already been discussed with respect to the rejection of claim 9 except for the first controlling means.

Takatsuka teaches the first controlling means executing the first control corresponding to the moved direction and the amount of the movement of the sliding key [par. (0019) lines 5-9].

As to **claim 27**, Takatsuka teaches the first controlling means executing the change of the position displaying a subject to be controlled on the displaying means [par. (0019) lines 5-9].

As to **claim 29**, all of the claim limitations have already been discussed with respect to the rejection of claims 2 and 3.

As to **claim 40**, all of the claim limitations have already been discussed with respect to the rejection of claim 9.

As to **claim 41**, all of the claim limitations have already been discussed with respect to the rejection of claim 10.

As to **claim 42**, all of the claim limitations have already been discussed with respect to the rejection of claim 11.

As to **claim 43**, all of the claim limitations have already been discussed with respect to the rejection of claim 12.

As to **claim 44**, all of the claim limitations have already been discussed with respect to the rejection of claim 16.

As to **claim 45**, all of the claim limitations have already been discussed with respect to the rejection of claim 17.

As to **claim 46**, all of the claim limitations have already been discussed with respect to the rejection of claim 18.

As to **claim 47**, all of the claim limitations have already been discussed with respect to the rejection of claim 19.

As to **claim 48**, all of the claim limitations have already been discussed with respect to the rejection of claim 20.

As to **claim 49**, all of the claim limitations have already been discussed with respect to the rejection of claim 21.

7. **Claims 5-8, 30, 32, 35, 37, 38, and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatsuka and Kobachi as applied to claims 1-4, 9-12, 16-22, 24, 27, 29 and 40-49 above, and further in view of SanGiovanni (US 6,967,642).

As to **claim 5**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for a surrounding key and switches detecting the movement of the surrounding key.

Takatsuka modified by Kobachi does not teach a surrounding key.

However, SanGiovanni [figs. 1, 2A, 2B, and 2C] teaches a surrounding key (a plurality of "*input sensing devices 120*") comprising a ring shape larger than the opening of a central portion ("*central portion 104*") including a central inputting key ("*120*").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takatsuka to include a surrounding key around its sliding key, as taught by SanGiovanni, in order to provide a plurality of inputting means for Takasuka's mobile device.

Takatsuka modified by SanGiovanni does not expressly teach the structure of the surrounding key.

However, Takatsuka [fig. 21] teaches a structure for an inputting key which moves in vertical direction and is fixed on the upper surface of the elastic sheet and switches detecting the movement in a vertical direction of the key.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the modified Takasuka's surrounding key to have a structure which is same as the structure of Takasuka's inputting device in order to implement the plurality of the inputting keys on a circuit board easily, by using same components.

As to **claim 6**, all of the claim limitations have already been discussed with respect to the rejection of claim 2.

As to **claim 7**, all of the claim limitations have already been discussed with respect to the rejection of claim 3.

As to **claim 8**, all of the claim limitations have already been discussed with respect to the rejection of claim 4 except for a second control generating means that generates a second control signal.

The modified Takatsuka discussed with respect to the rejection of claim 5 teaches a second control signal generating means that generates a second control signal corresponding to the pushed direction of one of the edges of the surrounding key detected by one of the switches wherein the second control signal executes the change of the position of a subject to be controlled on a display [Takatsuka: par. (0133)].

As to **claim 30**, all of the claim limitations have already been discussed with respect to the rejection of claims 5, 8, and 22.

As to **claim 32**, all of the claim limitations have already been discussed with respect to the rejection of claim 24.

As to **claim 37**, all of the claim limitations have already been discussed with respect to the rejection of claim 27 except for the second controlling means executing the change of the position displaying a second subject to be controlled on the displaying means.

Takatsuka modified by SanGiovanni [SanGiovanni: fig. 9] teaches the second controlling means executing the change of the position displaying a second subject to be controlled on the displaying means [SanGiovanni: col. 11 lines 16-21].

As to **claim 35**, all of the claim limitations have already been discussed with respect to the rejection of claim 37.

As to **claim 38**, Takatsuka teaches a third controlling means executing the selection or the decision of information indicating by the first or second subject to be controlled on the displaying means [Takatsuka: par. (0133)].

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As to **claim 39**, all of the claim limitations have already been discussed with respect to the rejection of claims 2 and 3.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 19, 2006

S.M.

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

